WHAT IS CLAIMED IS:

1. A circuit board electrically insulating material in sheet form, comprising:

a porous sheet; and

a resin layer laminated to a surface of the porous sheet,

wherein at least a central portion of the porous sheet is not impregnated with resin and the circuit board insulating material has a thickness sufficiently small for use in a circuit board.

2. The circuit board electrically insulating material according to claim 1, wherein hollow pores are present in at least the central portion of the porous sheet and the volume of the pores is 10 vol.% or more and 45 vol.% or less with respect to the entire volume of the circuit board electrically insulating material.

3. The circuit board electrically insulating material according to claim 1, wherein the maximum hole diameter of the pores is 10 μ m or less.

4. The circuit board electrically insulating material according to claim 1, wherein the porous sheet comprises at least one selected from the group consisting of an organic material and ceramics.

5. The circuit board electrically insulating material according to claim 4, wherein the organic material comprises at least one material selected from the group consisting of polytetrafluoroethylene (PTFE), polyimide, all aromatic polyamide, and all aromatic polyester.

6. The circuit board electrically insulating material according to claim 1, wherein the porous sheet is a non-woven fabric containing a synthetic fiber as a main component.

7. A circuit board comprising:

a desired number of electrically insulating layers and wiring layers which are laminated alternately, and

an inner via hole for securing an electrical connection between the wiring layers by compressing and hardening a conductive paste including a

conductive particle and a resin; wherein:

the electrically insulating layer comprises a porous sheet in which a resin layer is laminated to at least one surface, and at least a central portion of the porous sheet is not impregnated with a resin;

a through hole penetrating the electrically insulating layer in the thickness direction of the electrically insulating layer is filled with a conductive paste including a conductive particle and a resin, and pores that are present inside the porous sheet are filled with the laminated resin; and

the average hole diameter of the pores that are present inside the porous sheet is smaller than the average particle size of the conductive particle.

8. The circuit board according to claim 7, wherein the electrically insulating layer provided with the inner via hole including a conductive particle and a resin is formed by filling the pores of the porous sheet with a resin simultaneously with compressing and hardening the conductive paste.

9. The circuit board according to claim 7, wherein the maximum hole diameter of the pores of the porous sheet is 10 μ m or less.

10. The circuit board according to claim 7, wherein the porous sheet comprises at least one selected from the group consisting of an organic material and ceramics.

11. The circuit board according to claim 10, wherein the organic material comprises at least one material selected from the group consisting of polytetrafluoroethylene (PTFE), polyimide, all aromatic polyamide, and all aromatic polyester.

12. A method for manufacturing a double-sided circuit board, comprising:

providing a through hole in a laminate in which mold release films are formed on both surfaces of a circuit board electrically insulating material that is a circuit board electrically insulating sheet comprising a porous sheet in which a resin layer is laminated to at least one surface of the porous sheet and at least a central portion of the porous sheet is not completely impregnated with a resin;

filling the through hole with a conductive paste;

peeling off the mold release film from the laminate in which the through hole is filled with the conductive paste;

superimposing metal foils on both surfaces of the circuit board electrically insulating material from which the mold release films have been peeled off to form a laminate;

heating and pressing the laminate to allow hollow pores of the porous sheet to be filled with resin and allow the metal foils to be adhered to the porous sheet, and compressing and hardening the conductive paste filled in the through hole, thereby providing an inner via hole; and

forming desired circuit patterns on the metal foil.

13. The method for manufacturing a double-sided circuit board according to claim 12, wherein the conductive paste contains a conductive particle and a resin as a main component and the average hole diameter of the pores of the porous sheet is smaller than the average particle size of the conductive particle.

14. The method for manufacturing a double-sided circuit board according to claim 13, wherein the conductive paste comprises conductive particles in the range from 70 to 95 weight % and resin in the range from 5 to 30 weight %.

15. The method for manufacturing a double-sided circuit board according to claim 12, wherein the maximum hole diameter of the pores of the porous sheet is 10 μ m or less.

16. The method for manufacturing a double-sided circuit board according to claim 12, wherein the porous sheet is a non-woven fabric containing a synthetic fiber as a main component.

17. A method for manufacturing a double-sided circuit board, comprising:

forming a laminate either by superimposing resin sheets on both surfaces of a porous sheet that is not completely impregnated with a resin, further superimposing mold release films on both surfaces of the laminated resin sheet, and pressing thereof; or by forming a resin layer on one surface of a pair of mold release films, further sandwiching a porous sheet that is not impregnated with a resin by the sides of the resin layer of the mold release

films provided with the resin layers; and pressing thereof;

providing a through hole in the laminate provided with the mold release films; filling the through hole with a conductive paste; peeling off the mold release films from the laminate in which the through hole has been filled with the conductive paste; superimposing the metal foils on both surfaces of the laminate from which the mold release films have been peeled off; heating and pressing the laminate to allow hollow pores of the porous sheet to be filled with a resin and allow the metal foil to be adhered to the porous sheet, and compressing and hardening the conductive paste filled in the through hole, thereby providing an inner via hole; and

forming desired circuit patterns on the metal foil.

18. The method for manufacturing a double-sided circuit board according to claim 17, wherein the conductive paste contains a conductive particle and a resin as a main component, and an average hole diameter of the pores of the porous sheet is smaller than the average particle size of the conductive particle.

19. The method for manufacturing a double-sided circuit board according to claim 18, wherein the conductive paste comprises conductive particles in the range from 70 to 95 weight % and resin in the range from 5 to 30 weight %.

20. The method for manufacturing a double-sided circuit board according to claim 17, wherein the maximum hole diameter of the pores of the porous sheet is 10 μ m or less.

21. The method for manufacturing a double-sided circuit board according to claim 17, wherein the porous sheet is a non-woven fabric comprising a synthetic fiber as a main component.

22. A method for manufacturing a double-sided circuit board, comprising:

providing a through hole in a laminate in which mold release films are formed on both surfaces of a porous sheet that is not completely impregnated with a resin; filling the through hole with a conductive paste, and peeling off the mold release films from the laminate in which the through hole has been filled with the conductive paste;

sandwiching the laminate from which the mold release films have been peeled off with transfer media, the transfer media being formed on a supporting base material by filling a resin in an exposed portion of the supporting base material at a side of a wiring layer provided one end surface of the supporting base material; and heating and pressing the laminate to allow hollow pores of the porous sheet to be filled with a resin and allow the wiring layer to be adhered to the porous sheet, and compressing and hardening the conductive paste filled in the through hole, thereby providing an inner via hole; and

removing the supporting base material of the transfer medium from the heated and pressed laminate.

23. The method for manufacturing a double-sided circuit board according to claim 22, wherein the conductive paste contains a conductive particle and a resin as a main component and the average hole diameter of the pores of the porous sheet is smaller than the average particle size of the conductive particle.

24. The method for manufacturing a double-sided circuit board according to claim 23, wherein the conductive paste comprises conductive particles in the range from 70 to 95 weight % and resin in the range from 5 to 30 weight %.

25. The method for manufacturing a double-sided circuit board according to claim 22, wherein the maximum hole diameter of the pores of the porous sheet is 10 μ m or less.

26. The method for manufacturing a double-sided circuit board according to claim 22, wherein the porous sheet is a non-woven fabric comprising a synthetic fiber as a main component.

27. A method for manufacturing a double-sided circuit board, the method comprising:

forming a resin layer at the side of a wiring layer of a transfer medium in which a wiring layer is provided on a supporting base material;

sandwiching both surfaces of a porous sheet that is not completely impregnated with a resin between the transfer medium on which the resin

layer is formed and a mold release film provided with a resin layer to form a laminate;

providing a non-through hole at a desired position of the laminate from the side of the mold release film;

filling the non-thorough hole with a conductive paste;

peeling off the mold release film from the laminate on which the non-through hole has been filled with the conductive paste;

superimposing a metal foil on the surface of the laminate from which the mold release film has been peeled off;

heating and pressing the laminate on which the metal foil is superimposed to allow hollow pores of the porous sheet to be filled with a resin and allow the metal foils and the wiring layer of the transfer medium to be attached to the porous sheet, and compressing and hardening the conductive paste filled in the non-through hole, thereby providing an inner via hole;

forming desired circuit patterns on the metal foil; and

removing the supporting base material from the laminate in which the circuit patterns have been formed on the metal foil.

28. The method for manufacturing the double-sided circuit board according to claim 27, wherein the conductive paste comprises a conductive particle and a resin as a main component and the average hole diameter of the pores of the porous sheet is smaller than the average particle size of the conductive particle.

29. The method for manufacturing the double-sided circuit board according to claim 28, wherein the conductive paste comprises conductive particles in the range from 70 to 95 weight % and resin in the range from 5 to 30 weight %.

30. The method for manufacturing the double-sided circuit board according to claim 28, wherein the maximum hole diameter of the pores of the porous sheet is 10 μ m or less.

31. The method for manufacturing the double-sided circuit board according to claim 28, wherein the porous sheet is a non-woven fabric comprising a synthetic fiber as a main component.

32. A method for manufacturing a multilayer circuit board, the method repeating the following steps once or more:

providing a through hole in a laminate in which mold release films are formed on both surfaces of a circuit board electrically insulating material that is a circuit board electrically insulating sheet comprising a porous sheet in which the resin layer is laminated to at least one surface and at least a central portion of the porous sheet is not impregnated with a resin; and filling the through hole with a conductive paste;

peeling off the mold release films from the laminate in which the through hole has been filled with the conductive paste;

superimposing a desired number of the circuit board electrically insulating materials from which the mold release films have been peeled off and the circuit board provided with two or more of wiring layers alternately so that the circuit board electrically insulating material becomes the outermost layer, and furthermore superimposing metal foils on the surface thereof to form a laminate;

heating and pressing the laminate to allow hollow pores of the porous sheet to be filled with a resin and allow the metal foil and the circuit board to be adhered to the porous sheet, and compressing and hardening the conductive paste filled in the through hole, thereby providing an inner via hole; and

forming desired circuit patterns on the metal foil.

33. The method for manufacturing the multilayer circuit board according to claim 32, wherein the conductive paste contains a conductive particle and a resin as a main component and the average hole diameter of the pores of the porous sheet is smaller than the average particle size of the conductive particle.

34. The method for manufacturing the multilayer circuit board according to claim 33, wherein the conductive paste comprises conductive particles in the range from 70 to 95 weight % and resin in the range from 5 to 30 weight %.

35. The method for manufacturing the multilayer circuit board according to claim 32, wherein the maximum hole diameter of the pores of the porous

sheet is 10 μ m or less.

36. The method for manufacturing the multilayer circuit board according to claim 32, wherein the porous sheet is a non-woven fabric comprising a synthetic fiber as a main component.

37. A method for manufacturing a multilayer circuit board, the method repeating the following steps once or more:

forming a laminate either by superimposing resin sheets on both surfaces of the porous sheet that is not completely impregnated with a resin, further superimposing the mold release films on both surfaces of the laminated resin sheet, and pressing thereof; or by forming a resin layer on one surface of a mold release film, sandwiching a porous sheet that is not completely impregnated with the resin between the sides of the resin layer of the mold release film provided with the resin layer; and pressing thereof;

providing a through hole in the laminate provided with the mold release films; filling the through hole with a conductive paste, and peeling off the mold release films from the laminate in which the through hole has been filled with the conductive paste;

superimposing a desired number of the laminates from which the mold release films have been peeled off and the circuit board electrically insulating material provided with two or more of the wiring layers alternately so that the circuit board electrically insulating material becomes the outermost layer, and furthermore superimposing a metal foil;

heating and pressing the laminate to allow hollow pores of the porous sheet to be filled with a resin and allow the metal foil and the circuit board to be adhered to the porous sheet, and compressing and hardening the conductive paste filled in the through hole, thereby providing an inner via hole; and

forming desired circuit patterns on the metal foil.

38. The method for manufacturing a multilayer circuit board according to claim 37, wherein the conductive paste contains a conductive particle and a resin as a main component and the average hole diameter of the pores of the porous sheet is smaller than the average particle size of the conductive particle.

39. The method for manufacturing a multilayer circuit board according to claim 38, wherein the conductive paste comprises conductive particles in the range from 70 to 95 weight % and resin in the range from 5 to 30 weight %.

40. The method for manufacturing a multilayer circuit board according to claim 38, wherein the maximum hole diameter of the pores of the porous sheet is 10 μ m or less.

41. The method for manufacturing a multilayer circuit board according to claim 38, wherein the porous sheet is a non-woven fabric comprising a synthetic fiber as a main component.

42. A method for manufacturing a multilayer circuit board, the method repeating the following steps once or more;

forming a resin layer on at least one surface of a circuit board provided with two or more wiring layers; superimposing a porous sheet that is not completely impregnated with a resin at the side of the resin layer of the circuit board; and furthermore superimposing a mold release film provided with a resin layer on one surface onto the porous sheet;

providing a non-through hole at a desired position of the laminate from the side of the mold release film; filling the non-through hole with a conductive paste; and peeling off the mold release film from the laminate in which the non-through hole has been filled with the conductive paste;

superimposing metal foils on the surfaces of the laminate from which the mold release films have been peeled off; heating and pressing the laminate to allow hollow pores of the porous sheet to be filled with a resin and allow the metal foil and the circuit board to be adhered to the porous sheet, and compressing and hardening the conductive paste filled in the through hole, thereby providing an inner via hole; and

forming desired circuit patterns on the metal foil.

43. The method for manufacturing a multilayer circuit board according to claim 42, wherein the conductive paste contains a conductive particle and a resin as a main component and the average hole diameter of the pores of the porous sheet is smaller than the average particle size of the conductive particle.

44. The method for manufacturing a multilayer circuit board according to claim 43, wherein the conductive paste comprises conductive particles in the range from 70 to 95 weight % and resin in the range from 5 to 30 weight %.

45. The method for manufacturing a multilayer circuit board according to claim 42, wherein the maximum hole diameter of the pores of the porous sheet is 10 μ m or less.

46. The method for manufacturing a multilayer circuit board according to claim 42, wherein the porous sheet is a non-woven fabric comprising a synthetic fiber as a main component.